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Remarks

Claims 1-2, 4-23, 26-28, 30-34, 50-55, 57-63, 65, and 69-78 are pending.

Claims 1, 9, 11-13, 18, 22, 28, 32, 50, 58, 60-62, and 69-78 have been amended.

The claims have been amended to clarify that the bond pads are connected to function circuitry, and that one pad is *operable* to receive and supply *both* a test mode signal and an operational mode signal to the function circuitry, and the other bond pad is *operable* to receive and supply only an operational mode signal and not a test mode signal. The amendments to the claims are supported in the specification, for example, at page 4, lines 5-9.

The amendments are intended to merely clarify language used in the claims and the subject matter claimed, and the scope of the claims is intended to be the same after the amendment as it was before the amendment.

Rejections under 35 U.S.C. § 102(b) (Preslar)

The Examiner maintains the rejection of Claims 28, 30-34, 74, and 76 as anticipated by USP 5,900,643 (Preslar). This rejection is respectfully traversed.

Claims 28, 32, 74 and 76 have been amended to clarify that a first bond pad is operable to (a) receive and supply a test mode signal to function circuitry to enable or initiate the test mode and (b) to receive and supply an operational mode signal to the function circuitry to initiate an operational mode upon completion of the test mode and connection of the first and second bond pads together, and that the second bond pad is operable to receive and supply only an operational mode signal and not a test mode signal to the function circuitry.

Unlike the claimed device, Preslar does not teach or suggest a bond pad that is *operable (functional)* to receive and supply only an operational mode signal to a function circuitry.

The Examiner proposes that this limitation is met by bond pad portion 42 of Preslar's device. The Examiner rejected the claims based on Preslar, stating as follows (Office Action, page 3; emphasis added):

- wherein one of the bond pads (42 and 42a) is connected to function circuitry of the device...and adapted to receive and supply a test mode signal...and an operation mode signal..., and the other of the bond pad is adapted to receive and supply only an operational mode signal to the function circuitry upon bond pads being connected together (column 5, lines 28-32 and column 6, lines 18-52. Pad 40 is used for testing (e.g., probe 50) and operation (e.g., bond pad 52) while pad 42 is used only for operation (e.g., bond pad 52))...

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The Examiner further stated at page 22 (emphasis added):

Furthermore, Preslar discloses in e.g., column 5, lines 28-32 and column 6, lines 18-52 one bond pad adapted to receive and supply a test mode signal and an operation mode signal to function circuitry in the die, and the other bond pad adapted to receive and supply only an operation mode signal. *Pad 40 is used for testing (e.g., probe 50) and operation (e.g., bond pad 52) while pad 42 is used for operation (e.g., bond pad 52)).*¹

The Examiner is mistaken.

Preslar discloses a device having a composite bond pad 36 made of two portions 40, 42 that are separated by a gap (66). This structure is illustrated in FIGS. 2A and 3 below.

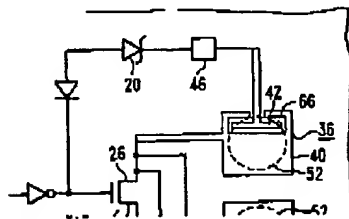


FIG. 2A

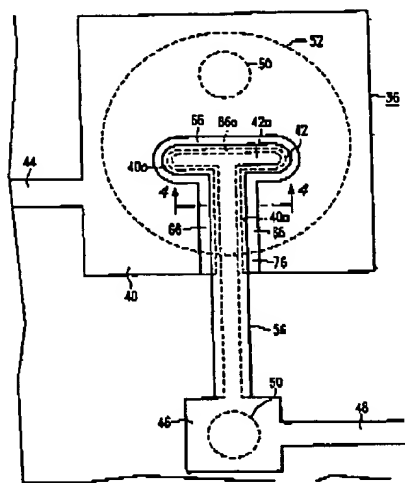


FIG. 3

The large portion 40 is connected to a drain electrode (26). The small portion 42 is electrically connected to a test pad 46, which is connected to a Zener diode (20). Separate testing of the drain electrode (26) and the Zener diode (20) is performed with separate test probes brought into contact with contact areas 50 on the large portion 40 and on the test pad 46. After testing, a terminal wire (circle 52) is bonded to the two bond pad portions 40, 42 to electrically interconnect the two bond pad portions 40, 42 – and the Zener diode (20) with the drain electrode (26).

¹ It is believed that the Examiner meant "bonding wire" which is shown by a dash circle 52 in FIG. 2.

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Bond pad 42 is an extension of the test pad 46. The two components 42, 46 are electrically connected – and bond pad 42 is indirectly connected to the Zener diode (20) through the test pad 46.

In the Abstract, Preslar characterizes the connection made by the bonding wire (circle 52) as electrically connecting the "bonding pad and the probe contact area" – the bonding pad 42 being "an extension from the contact area." See the Abstract (emphasis added):

First and second electrical components on an integrated circuit chip are electrically connected respectively to a wire bonding pad and to a probe contacting area of a size significantly less than the bonding pad. *The pad and contacting area are electrically isolated* whereby both components can be separately electrically tested by test probes contacting each of the pad and the contact area. *After the components have been tested, the bonding pad and the probe contact area are electrically connected together for electrically connecting the first and second components.* The electrical connection is made by bonding a terminal wire to the bonding pad as well as to an extension from the contact area substantially filling a space within the bonding pad and underlying the joint formed between the terminal wire and the bonding pad.

In the Summary, Preslar states that *the test area or its extension forms a part of the composite bonding pad*. See at col. 3, lines 8-21:

In a preferred embodiment, the probe contacting area and the bonding pad are so physically disposed that the joint formed between the terminal wire and the bonding pad overlies and contacts a portion of the probe contacting area, thereby electrically interconnecting the two areas. *In one embodiment, a gap is provided between two portions of the bonding pad and a portion of the probe contact test area (or the test area itself) extends into the gap in close but spaced apart relation to the two bonding pad portions. After testing of the components, the terminal wire is connected to the test area and the bonding pad. In effect, the test area or the extension thereof forms a part of a composite bonding pad all portions of which are overlaid and electrically interconnected by the terminal wire.*

At col. 4, line 26, Preslar even refers to bond pad portion 42 as "*the Zener diode connected portion 42.*"

There is no disclosure in Preslar that bond pad 42 does not operate or function to receive test signals – merely that test pad 46 rather than bond pad 42 is contacted with a test probe.

Bond pad portion 42 is *electrically connected to test pad 46 – and to component 20*. When the two bond pad portions 40, 42 are connected (circle 52), the Zener diode (20) and drain electrode (26) are also interconnected. Accordingly, signals pass *through both bond pad portions 40, 42 and onto components 20, 26*.

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This is evidenced by Preslar's statements at col. 3, lines 59-61, and at col. 4, lines 3-8 (emphasis added):

...The small portion 42 is electrically connected to a "test" pad 46 connected, in turn, to the Zener diode 20.

...The bonding wire (shown by a dash circle 52 in FIG. 2) overlaps and contacts both portions 40 and 42 of the composite bonding pad 36, hence electrically interconnects the two portions (hence the Zener diode 20 and the drain electrode 26) directly on the chip...

The Examiner is also directed to col. 5, lines 49-60 (emphasis added):

After testing,...A terminal wire is also bonded to the composite bonding pad 36 shown in FIGS. 3 and 4. As indicated in FIG. 3 by the dash line circle 52, the bonded terminal wire overlaps and contacts both portions 40 and 42 of the composite bonding pad 36. Accordingly, upon the bonding of a single terminal wire to the composite bonding pad 36, the first and second components respectively connected to the test pad 46 and to the portion 40 of the bonding pad 36 are electrically connected together directly on the chip.

Preslar's bond pad portion 42 is merely an extension of test pad 46. Connection of the two bond portions 40, 42 with a bonding wire (circle 52) – also connects the test pad 46 to the composite bond pad 40, 42 – and provides a common connection for both the Zener diode 20 with the drain electrode 26.

Preslar does not teach that the bond pad portion 42 is not *operable or functional* as a test pad. Preslar merely teaches that a test probe is placed into contact with test pad 46 rather than bond pad portion 42.

In addition, contrary to the Examiner's assertion regarding the language of the claims, the claims recite limitations that structurally define the bond pads of Applicant's devices – and do not merely recite *intended use or functional language*. These limitations differentiate the claimed structures from Preslar. The claims require a bond pad that is *structured so that it will operate* to receive and supply (a) a test mode signal to the function circuitry to enable or initiate the test mode, and (b) an operational mode signal to the function circuitry to initiate an operational mode upon completion of the test mode and connection of the first and second bond pads together. The claims also require a second bond pad that is *structured so that it will operate* to receive and supply *only* an operational mode signal – not a test mode signal, to the function

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circuitry. The Examiner is directed to the discussion of test bond pads in the specification at pages 8-9, bridging paragraph.

With Preslar's structure, bond pad portion 42 is an extension of and electrically connected to test pad 46, as discussed above. In essence, both bond pad portions 40, 42 are operable in the test mode and in the operational mode.

This is not Applicant's device as described and claimed.

Preslar does not teach or suggest Applicant's device as claimed having a first bond pad that is operable to receive and supply both a test mode signal and an operational mode signal to a function circuitry, and a second bond pad that is operable to receive and supply only an operational mode signal and not a test mode signal to the function circuitry.

Accordingly, withdrawal of the rejection of the claims based on Preslar is respectfully requested.

Rejection under 35 U.S.C. §103(a) (Preslar with Ellis-Monaghan)

The Examiner rejected Claims 1, 2, 4-23, 26, 27, 50-55, 57-65, 69, 70-73, 75, 77, and 78 as obvious over Preslar in view of Ellis-Monaghan (USP 6,495,917). This rejection is respectfully traversed.

The Examiner cites Ellis-Monaghan as disclosing a pad (361) having a plurality of lower metal layers (LM1-LM3) under an upper metal layer (361), citing to FIG. 36, and col. 7, line 51 to col. 8, line 23. The Examiner asserts that it would be obvious to modify Preslar by adding another lower metal layer on the lower metal layer of Preslar based on Ellis-Monaghan.

Ellis-Monaghan's disclosure fails to cure the base deficiency of the Preslar in teaching Applicant's devices as claimed. As stated above, Preslar teaches a bond pad structure in which both bond pads are operable as both a test enable bond pad and an operational bond pad.

The combination of the disclosure of Ellis-Monaghan with Preslar does not make obvious Applicant's bond pad structure as claimed. Accordingly, withdrawal of this rejection of the claims is respectfully requested.

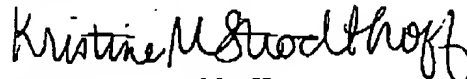
Extension of Term. The proceedings herein are for a patent application and the provisions of 37 CFR § 1.136 apply. Applicant believes that no extension of term is required. However, this conditional petition is being made to provide for the possibility that Applicant has

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inadvertently overlooked the need for a petition for extension of time. If any extension and/or fee are required, please charge Account No. 23-2053.

Applicant believes that the claims are in condition for allowance, and notification to that effect is respectfully requested.

Respectfully submitted,



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